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REMARKS/ARGUMENTS

Claims 5 and 16 have been canceled. Claims 8, 12-15 and 7 are pending and under consideration in the application.

Double Patenting Rejection

Claim 5 has been rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 25 and 30 of U.S. Patent No. 6,502,974.

This rejection has been obviated by cancellation of claim 5.

Rejection Under 35 U.S.C. §102

Claim 14 stands rejected under 35 U.S.C. §102(b) as being anticipated by Chase (U.S. Patent No. 6,331,068).

Attached for the Examiner's convenience, is a copy of the original application (Exhibit 1) including the specification and drawings from Provisional Application No. 60/423,817. Please note that the drawings in the image file wrapper are incorrect. The correct drawings are at pages 59-64 of a document in the image file wrapper named "Miscellaneous Incoming Letter."

The Examiner has acknowledged Applicant's argument that the '068 patent issued less than one year before the November 5, 2002 priority date of Provisional Application No. 60/423,817. However, the Examiner has taken the position that Applicant is not entitled to the November 5, 2002 priority date of the Provisional patent application with respect to claim 14, "because *undulations* claimed in claim 14 is a new subject matter, which was not described in the Provisional application 60/423,817."

Under 35 U.S.C. §119(e), the claims in the United States Patent Application are entitled to the benefit of the filing date of a Provisional application if the corresponding Provisional application supports the claims in the manner required by 35 U.S.C. §112, first paragraph. *In re Ziegler*, 992 F.2d 1197, 1200, 26 USPQ2d 1600, 1603 (Fed. Cir. 1993); *Kawai v. Metlesics*, 480 F.2d 880, 178 USPQ 158 (CCPA 1973); *In re Gosteli*, 872 F.2d 1008, 10 USPQ2d 1614 (Fed. Cir. 1989). This means that the claimed subject matter must be enabled and must be in compliance with the written description requirement. To satisfy the

written description requirement, an applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention, and that the invention in that context, is whatever is now claimed. The test for sufficiency of support in a parent application is whether the disclosure of the application relied upon "reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter." *Ralston Purina Company v. Far-Mar-Co., Inc.*, 772 F.2d 1570, 1575, 227 USPQ 177, 179 (Fed. Cir. 1985) (quoting *In re Kaslow*, 707 F.2d 1366, 1375, 217 USPQ 1089, 1096 (Fed. Cir. 1983)). An applicant shows possession of the claimed invention by describing the claimed invention with all of its limitations using such descriptive means as words, structures, figures, diagrams, and formulas that fully set forth the claimed invention. *Lockwood v. American Airlines, Inc.*, 107 F.3d 1565, 1572, 42 USPQ2d 1961, 1966 (Fed. Cir. 1997).

Clearly, the Provisional patent application, entitled "Controlled Deformable Headlamp Assembly," discloses a headlamp assembly including a lens and housing having a flexure member positioned therebetween, wherein the improvement comprises the flexure member being shaped to dynamically change its energy absorption characteristics during impact. As described in the specification, "Figs. 2A-2E illustrate perspective views of different geometries which can be employed for controlling the deformation of the flexure member . . .." Fig. 2D clearly discloses a flexure member having the required undulations. Accordingly, the Provisional application, which includes the figures, discloses the subject matter of claim 14 of the above-referenced application. Thus, the written description requirement of 35 U.S.C. §112 has been met with respect to support in the Provisional patent application for claim 14 of the above-referenced application.

As for the enablement requirement, it is respectfully submitted that one having ordinary skill in the art could make and use the claimed headlamp assembly having a flexure member with undulations based on Fig. 2D of the Provisional application and the written specification. Accordingly, the Provisional patent application provides full support for the subject matter of claim 14.

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Claim Rejection Under 35 U.S.C. §103

Claim 16 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Chase et al. (U.S. Patent No. 6,502,974) in view of Tomforde (U.S. Patent No. 4,475,148).

This objection has been obviated by cancellation of claim 16.

Allowable Subject Matter

Applicant appreciatively acknowledges that claims 8, 12-15 and 17 have been allowed.

CONCLUSION

In view of the above amendments and remarks, it is respectfully submitted that the application is in condition for allowance and notice of the same is earnestly solicited.

Respectfully submitted,

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November 23, 2005
Date

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EXHIBIT 1

CONTROLLED DEFORMABLE HEADLAMP ASSEMBLY

BACKGROUND OF THE INVENTION

The present invention relates to a plastically deformable vehicle body part and particularly to a headlamp assembly.

This invention relates to a plastically deformable headlamp assembly generally of the type disclosed in U.S. Patent Nos. 6,190,030, 6,331,068 and Publication Nos. 2001/0046140 A1 and 2001/0040811 A1, incorporated herein by reference. The cover page and drawings of these patents and applications are attached as pages 5 through 71 inclusively. With such headlamp assemblies, damage to the vehicle during an impact or personal injury to a pedestrian during an impact with a vehicle headlamp, bumper or other body part is greatly reduced. It has been discovered, however, that, as the flexure member discussed in the above patents and patent applications deflects in the configurations disclosed, the resistance against flexing in some areas increases during the dynamic flexing of a part. In order to provide consistent predictable and uniform flexing, the system of the present invention controls the energy absorption dynamically during an impact to provide desirable energy absorption characteristics. By changing the geometry of the flexure member and/or its material, the dynamic energy absorption characteristics can be controlled.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a cross-sectional view of a flexure member, illustrating its plastic deformation during impact;

Figs. 2A-2E illustrate perspective views of different geometries which can be employed for controlling the deformation of the flexure member shown at 10 in Fig. 1;

Fig. 3 is a force verses displacement curve for a typical flexure member;

Figs. 4A-4C illustrate the deformation of a flexure member to control the deflection during an impact;

Fig. 5 is a schematic cross-sectional view of a guide member to control the direction of deflection of a flexure member during impact;

Fig. 6 is an exploded perspective view of a headlamp assembly in which a guide mounted to the lens fits within a guide track within the headlamp housing for controlling the direction of deflection of the flexure member;

Figs. 7 and 8 are diagrams representing the deflection of a lamp assembly during impact and the affect intersecting surfaces have in forming a column; and

Fig. 9 is a lens assembly having a flexure member with intersecting members forming a column including a predefined bulge to control the stiffness during flexing upon impact.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Controlling Energy Absorption

The flexure member can be used to control or influence energy absorption during an impact. This would be beneficial for both pedestrian impacts and bumper impacts and there could be multiple purposes. One way this can be done is by changing the geometry of the flexure member. A number of methods are illustrated in Figs. 2A-2E. In effect, these geometries will change the force verses displacement curve during an impact. The area under the curve is the energy absorbed by the headlamp (or tail lamp) system. By changing the geometry of the flexure member, The forces are changed at various displacements and, in this way, the energy absorption characteristics are controlled.

This could also be achieved by changing the material of which the flexure member is made. Flex modulus and tensile modulus of the material would be key characteristics. Additionally, the flexure member itself could be two-shot molded of dissimilar materials to tune the force deflection curve.

In a bumper impact, the ability to tune the energy curve might be important in reducing peak forces that would transfer to more brittle headlamp housing attachments or other fragile areas of the front end system. In the case of a child head impact, the rate of deceleration of the head, upper leg or lower leg relates to the damage to the pedestrian. High rates of deceleration correlate to severe damage. The deceleration curve can be varied by tuning the force/deflection curve through the above techniques.

Glide Members

When the flexure member collapses during an impact, the more rigid lens generally moves rearwardly in the case of a headlamp. It may be beneficial, however, for the lens to move slightly upwardly or to the side or downwardly. While the structural constraints of the flexure member can help guide the lens and the impact direction will also influence the lens travel direction, it may be helpful to add external glide members.

An external glide member could be configured in a variety of ways. It could be:

1) A smooth adjacent plane formed on the underside of the hood, inside of the fender, etc. that allows an edge of the lens to slide along it. The plane could be smooth so that little or no damage is experienced at the lens surface (see Fig. 5).

2) Glide tracks can be added to the housing that capture an element on the lens and force the lens to travel in a more restrained and accurate path (see Fig. 6).

Application

All of these ideas are applicable to all exterior automotive lamps, including fog lamps, tail lamps, headlamps, and other body parts.

It will become apparent to those skilled in the art that various modifications to the preferred embodiment of the invention as described herein can be made without departing from the spirit or scope of the invention as defined by the appended claims.

The invention claimed is:

1. A headlamp assembly including a lens and housing having a flexure member positioned therebetween, wherein the improvement comprises:

said flexure member being shaped to dynamically change its energy absorption characteristics during impact.

2. The assembly as defined in claim 1 wherein said flexure member includes intersecting surfaces and wherein the intersection includes a preformed indentation to prevent the formation of a column at the intersecting surfaces which stiffens during an impact.

3. A headlamp assembly comprising a lens and housing having a flexure member extending therebetween and guide means mounted to said housing for controlling the direction of deflection of said flexure member during an impact.

4. The assembly as defined in claim 3 wherein said lens includes a guide and said housing includes a guide track engaging said guide for controlling the direction of movement of said lens during an impact.

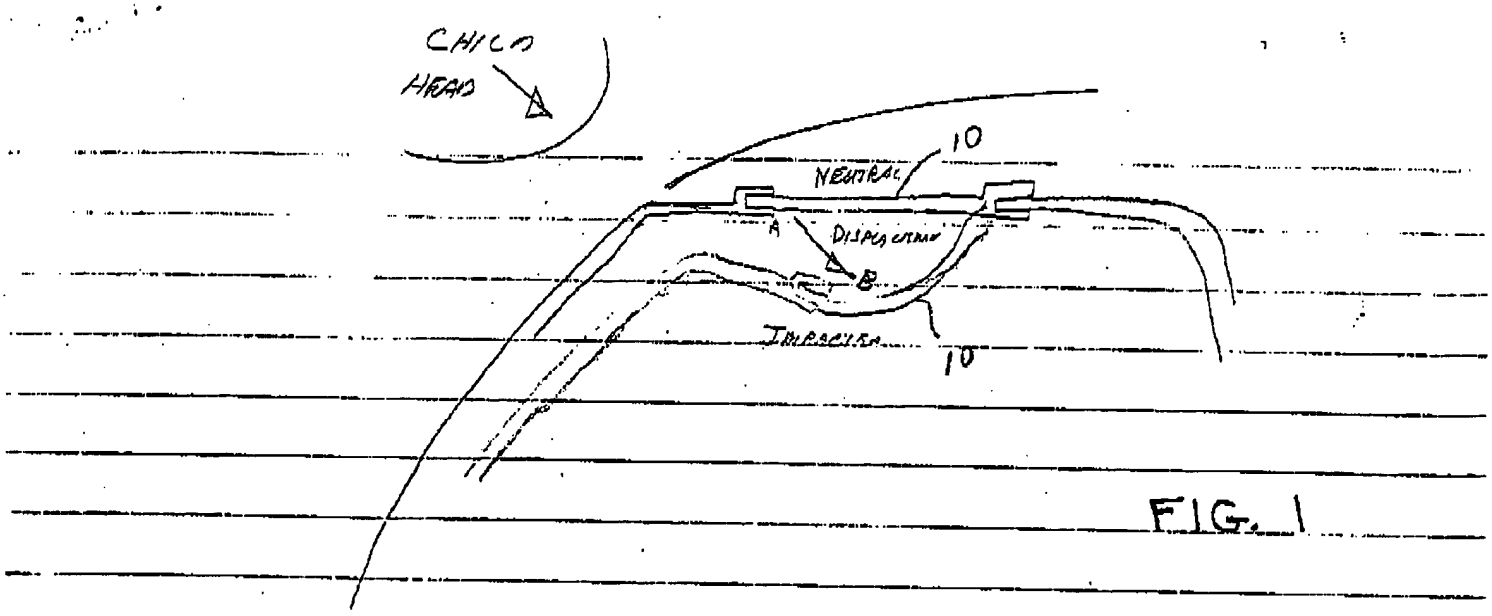


FIG. 1

The displacement area A-B (Fig. 1) can be used to help dissipate the energy of the child-head impact. This energy curve (Fig. 3) can be manipulated by changing the stiffness of the flexure member 10. The stiffness can also be tuned along the displacement curve by changing the shape of the flexure member, as seen in Figs. 2A-2E.

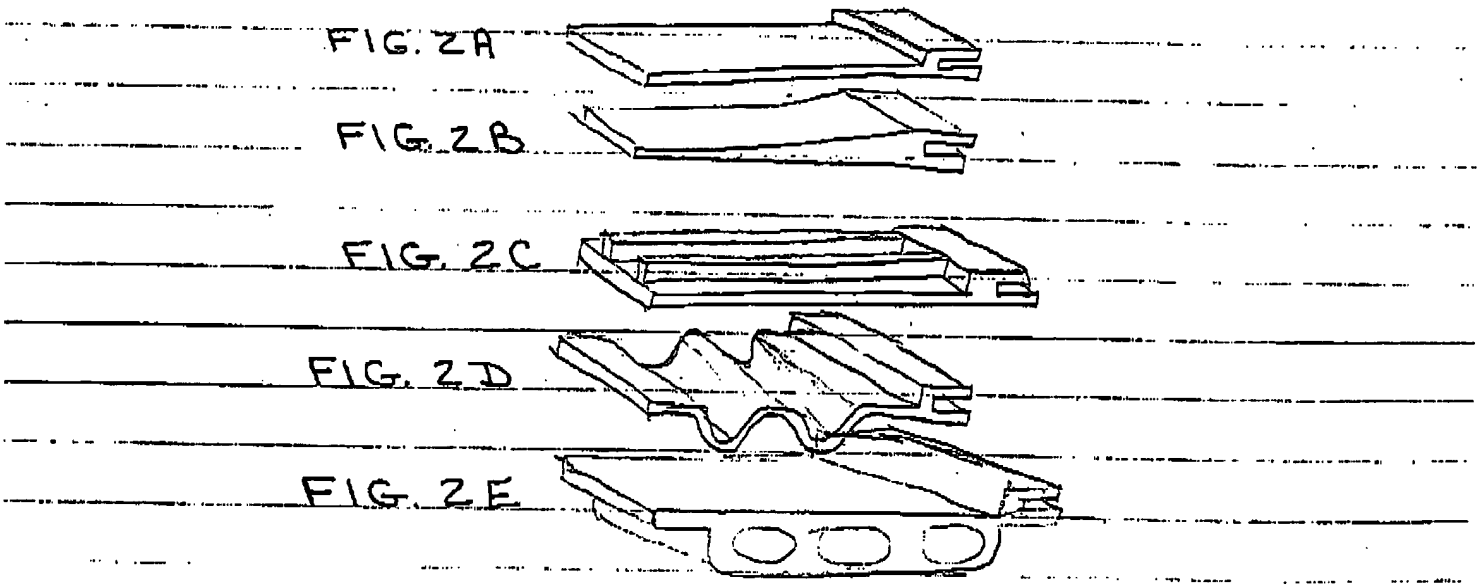


FIG. 2A

FIG. 2B

FIG. 2C

FIG. 2D

FIG. 2E

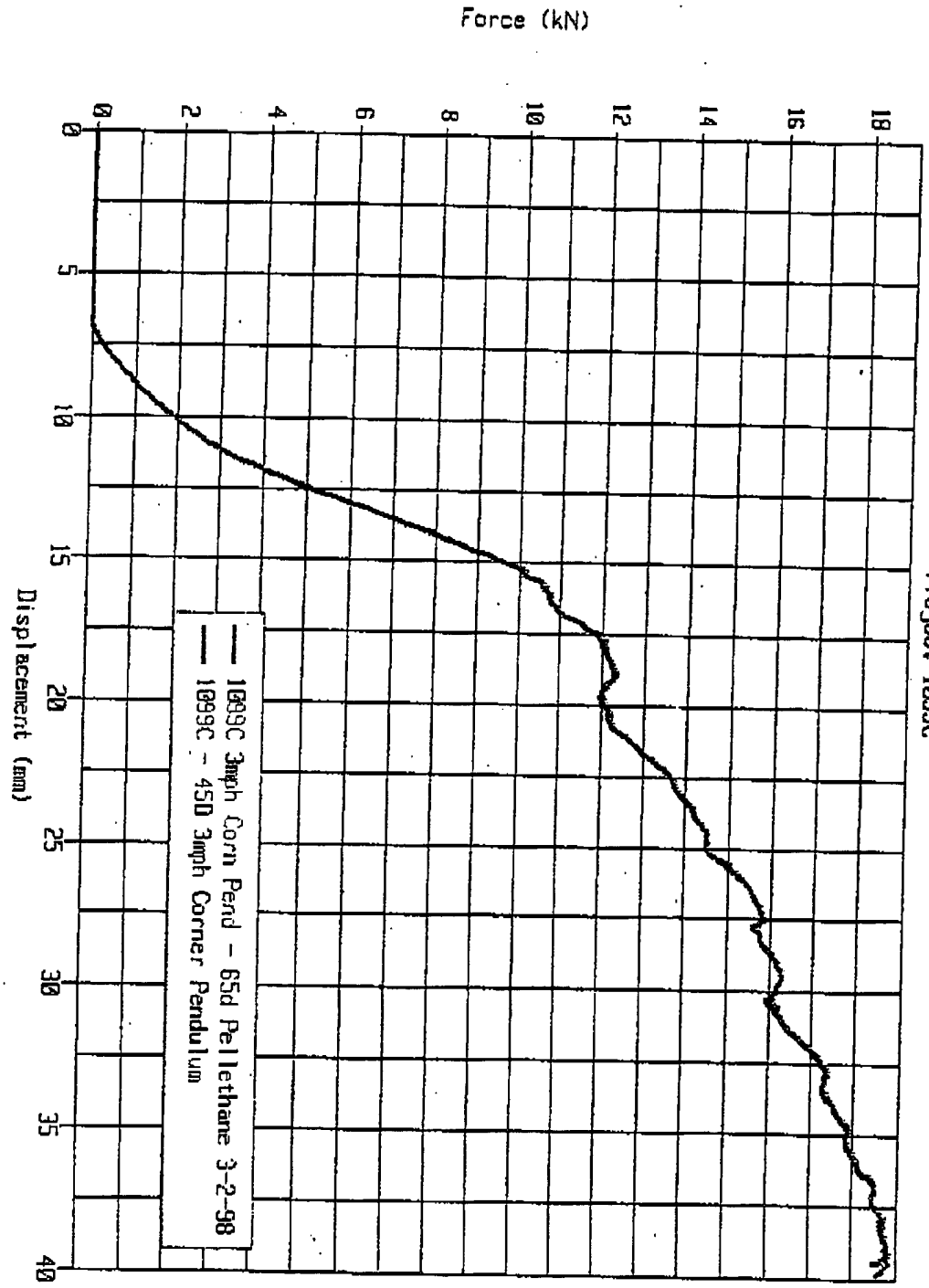
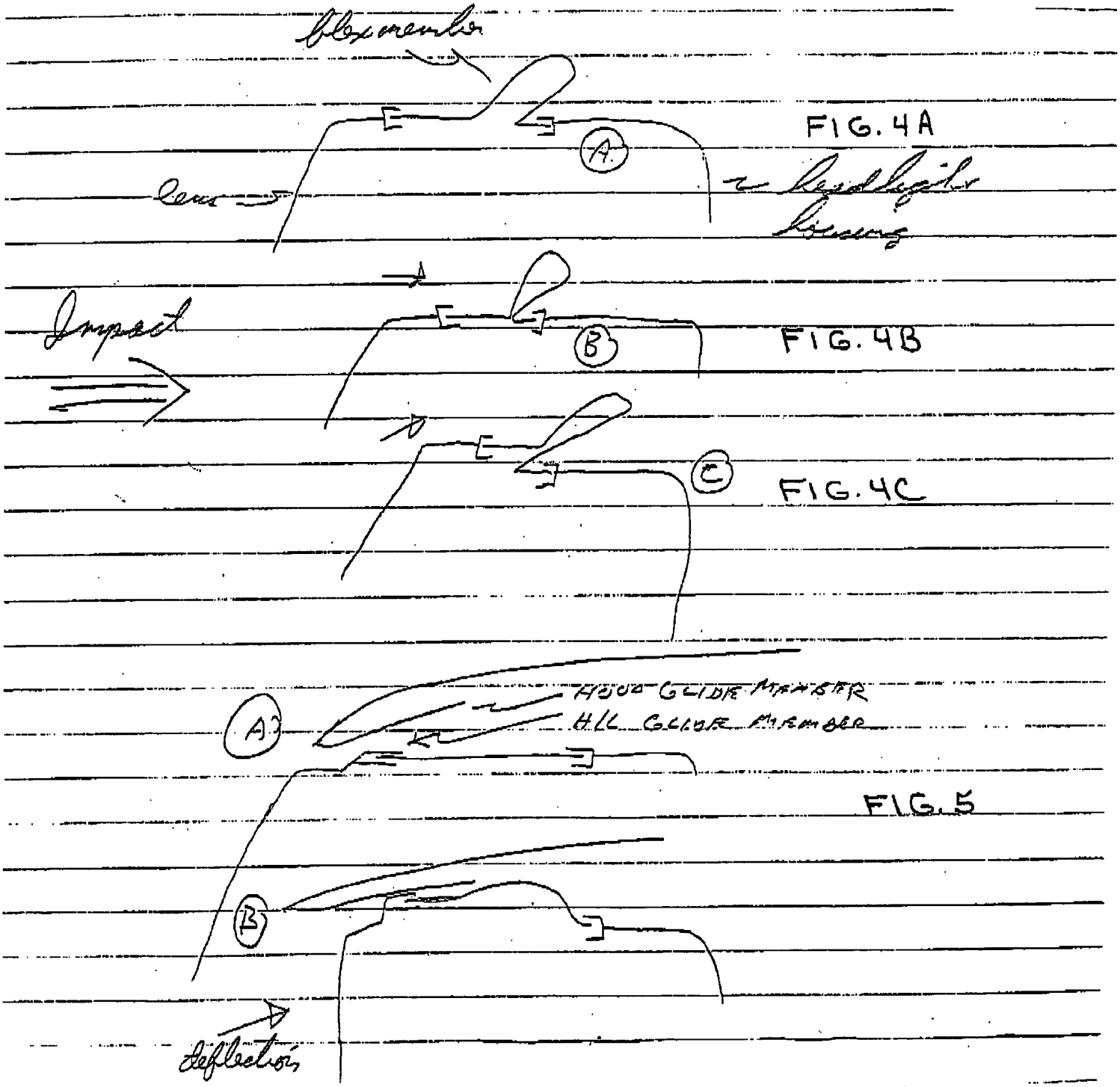

3 mph Corner Pendulum
Hartwick Professionals, Inc.
Project 1099C
Force (kN)
Displacement (mm)
0
2
4
6
8
10
12
14
16
18
0
5
10
15
20
25
30
35
40
1099C 3mph Corn Pend - 65d Pellethane 3-2-98
1099C - 45D 3mph Corner Pendulum

FIG. 3



The glide members (Figs. 5 and 6) help guide headlamp displacement so that more critical surfaces or internal functions are not damaged. They can be designed as the headlight body or adjacent components like hood, grille, header, bumpers, etc.

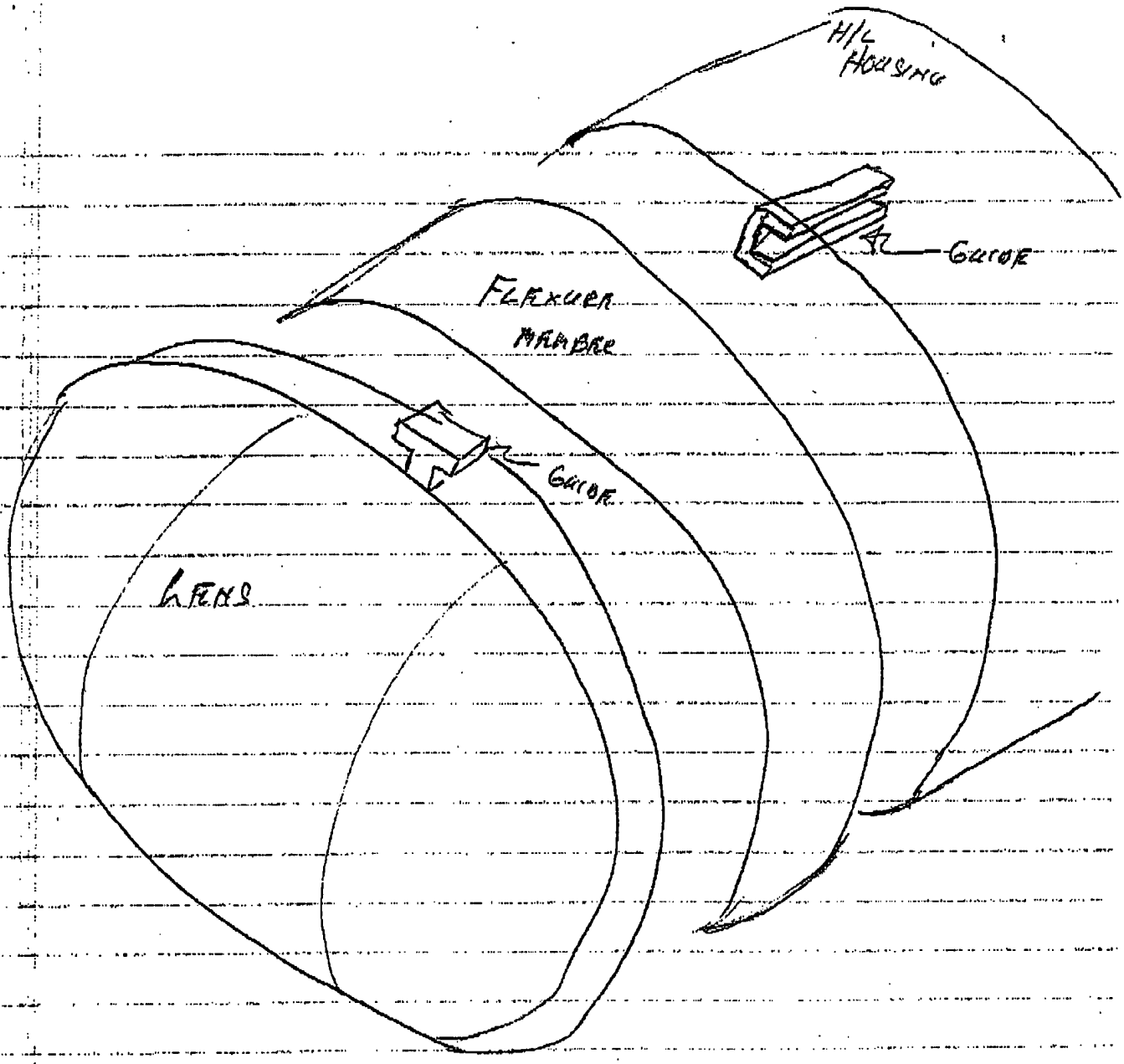
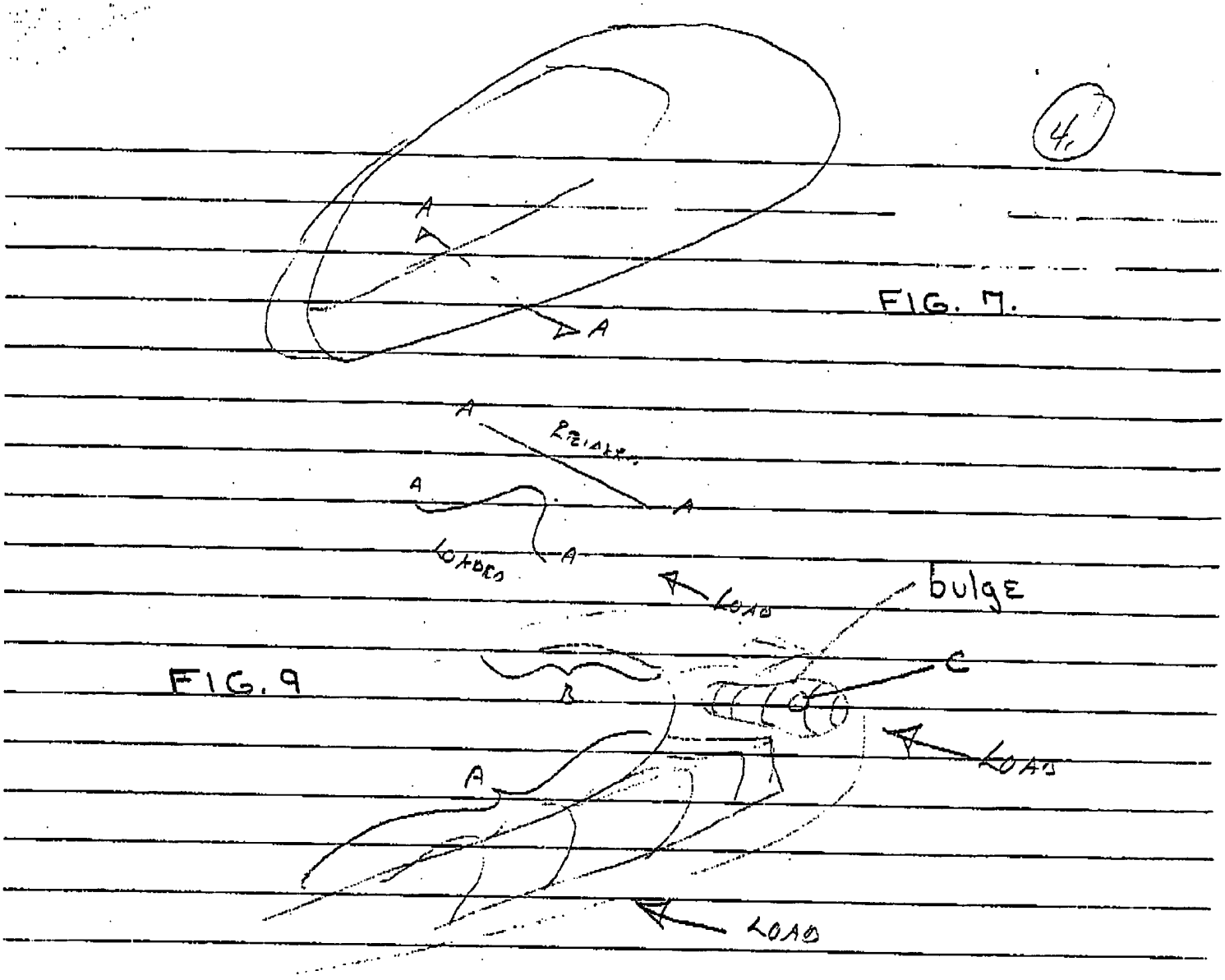
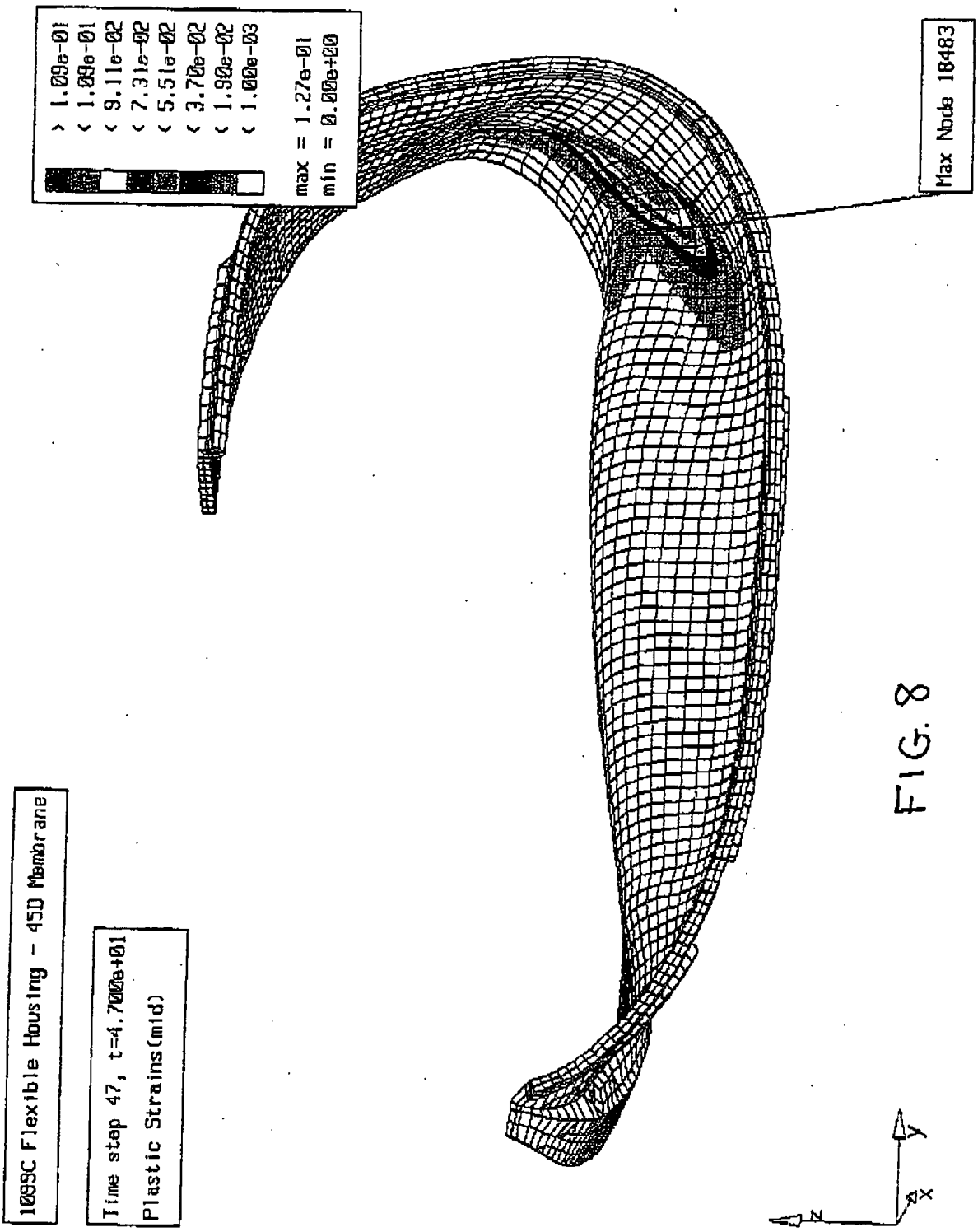


FIG. 6



When the load is applied on the face of the Zx2 lens, areas A and B (Figs. 7 and 8) collapse and fold relatively easily but area C is a column and the dart created by area A and B folding stiffens the column. The result is the need for ever lighter loads to buckle area C. To even the load, area C can be molded with a predefined bulge (Fig. 9).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< 9.11e-02
< 7.31e-02
< 5.51e-02
< 3.72e-02
< 1.92e-02
< 1.00e-03
max = 1.27e-01
min = 0.00e+00
Max Node 18483
1093C Flexible Housing - 45D Membrane
Time step 47, t=4.700e+01
Plastic Strains(mid)
Y
X
Z

FIG. 8